

AAAS.ORG | FEEDBACK | HELP | LIBRARIANS

All Science Journals

Enter Search Term

ADVANCED

[Science Home](#) | [Current Issue](#) | [Previous Issues](#) | [Science Express](#) | [Science Products](#) | [My Science](#) | [About the Journal](#)
[Home](#) > [Science Magazine](#) > [20 September 2013](#) > [Morell, 341 \(6152\): 1332-1335](#)
Science[Prev](#) | [Table of Contents](#) | [Next](#)[www.sciencemag.org](#)[Leave a comment \(0\)](#)**Science 20 September 2013:**

Vol. 341 no. 6152 pp. 1332-1335

DOI: 10.1126/science.341.6152.1332

• NEWS FOCUS

Predators in the 'Hood

Virginia Morell

As cougars, coyotes, and bears spread into backyards and downtowns, science is helping to show how people and predators can coexist.

Two years ago, in June 2011, A cougar wandered through backyards and peered into homes in Milford, Connecticut, the first mountain lion in that state in more than 100 years. Later that same year, a gray wolf crossed the Oregon border into California, the first wolf in that state in more than 80 years. Black bears now lumber through subdivisions in Ohio and Missouri, states that were bearless until recently. And coyotes, once restricted to the prairie states, now live from Panama to Alaska, including a booming population in downtown Chicago. The only chunk of North America that coyotes have not colonized is Long Island. "But it's only a matter of time before they do," says Mark Weckel, a conservation biologist at the American Museum of Natural History in New York City who is happily following coyotes' spread into his city.

Once hunted nearly to extinction in the lower 48, America's biggest predators are making a remarkable comeback. Their return has sparked a range of emotions, from surprise and joy to demands that the animals be harshly controlled, if not shot outright. Europe is experiencing a similar resurgence, and similar reactions (*Science*, 3 November 2006, p. 746). Recently, the Dutch were astonished to learn that a wolf had made its way to the Netherlands from Eastern Europe—the first since 1897—while French shepherds complain that wolves slaughter sheep and endanger their way of life.

Yet ecologists agree that the animals benefit ecosystems, and many citizens, especially in cities of the western United States, seem willing to have them back, says Stanley Gehrt, a wildlife biologist at Ohio State University, Columbus, who tracks Chicago's coyotes. That leaves scientists, conservationists, and wildlife managers all scrambling to figure out how to best manage animals that literally live next door and are capable of killing humans. "If you're interested in large carnivores, it's a very exciting time," Gehrt says. "There are more people than ever and yet we're seeing a resurgence and acceptance of these predators. Thirty years ago, no one would have predicted this would happen."

On the move

Several factors are spurring the predators' expansion. First, the landscape is getting greener: Forest land has expanded by 28% across 20 of the northern states, even as the human population has jumped by 130%, according to a 2012 U.S. Forest Service report. Cities contain more tree cover, plus bountiful white-tailed deer and cottontails. "Maybe having coyotes living next to us isn't what we were going for when we talked about 'greening' our

Related Resources**In Science Magazine****LETTERS****[Atlantic Rainforest's](#)****[Jaguars in Decline](#)***Mauro Galetti et al.**Science* 22 November 2013: 930.**NEWS FOCUS****[Man in the Middle](#)***Virginia Morell**Science* 20 September 2013: 1334-1335.**PODCASTS****[Science Podcast: 20](#)****[September Show](#)***Science* 20 September 2013: 1409.

View larger version:

[In this page](#) | [In a new window](#)[Download PowerPoint Slide for Teaching](#)

At home. An American black bear roamed downtown Aspen, Colorado, on a summer night.

CREDIT: RJ SANGOSTI/THE
DENVER POST/GETTY IMAGES

cities," Weckel says. "But this is the result—and it's a positive thing. If they're successful here, it means we've succeeded."

Predators bring ecological benefits: Coyotes help control Canada geese; black bears spread seeds; mountain lions and wolves eat deer. Wolves have helped restore Yellowstone National Park, for example, although managers face criticism from all sides (see sidebar, p. 1334).

In addition, most of North America's surviving predators have traits that make coexistence at least possible, says David Mattson, a wildlife biologist with the U.S. Geological Survey in Flagstaff, Arizona. "They're the last of the large Pleistocene carnivores and they've survived because they're the shyest and least aggressive," he says. "Most of them try to avoid [confronting] us."

Take the black bears of Durango, Colorado, a community of 20,000 people that abuts the 1.8 million-acre San Juan National Forest. At a recent meeting, Heather Johnson, a wildlife researcher with Colorado Parks and Wildlife in Durango, told of her informal survey of the city's school kids. "If you ask them if they've seen a bear in the wild, one or two will raise their hands. But if you ask, 'Have you seen a bear in your backyard?' every hand goes up."

During the dry summer of 2012, a black bear broke into someone's home or car in Durango most every night. Johnson and her team trap and count bears within 10 kilometers of the city to try to understand why. One reason is obvious: Bears need 20,000 calories per day in the late summer and can eat the same kinds of foods we do. Plus their huge home ranges, up to 260 square kilometers or more, inevitably overlap with some neighborhoods, where they find bounty in fruit trees and dumpsters. "It's a perfect storm for bear-human conflicts," Johnson says, adding that the same pattern afflicts many cities in the mountain west.

Although bears increasingly encounter humans, the interactions are rarely violent. Since 1900, black bears have killed only 14 people in the lower 48 states. As a result, we've reduced "the mindset that we should get rid of every bear we run into," says Brian Scheick of the Florida Fish and Wildlife Conservation Commission in Gainesville.

In Durango, for example, despite 431 complaints in the summer of 2012—about bears interrupting barbecues, ripping off siding, and eating trash—residents are surprisingly tolerant. In a formal survey, Johnson's agency found an almost 100% approval rating for bears. "People love the bears," Johnson says.

Occasionally bears may scratch someone, if a person acts foolishly by feeding it. Or they may break into someone's home, as a few have done in Durango. "People don't see their behavior as endangering themselves and the bear," Johnson says. But after such incidents, the animal may be identified as a "problem bear," requiring managers to try to capture or kill it.

Lethal force?

When a bear—or a cougar or coyote—becomes a nuisance, officers typically reach for a gun. It "is the easiest thing to do," Johnson says. "But there's no evidence that this is effective on a large scale." A growing number of wildlife researchers say that shooting a predator often doesn't solve the problem, because it merely opens territory to another animal. "It isn't a simple numbers game," says Robert Wielgus, a wildlife ecologist at Washington State University in Pullman.

For the last 30 years, Wielgus and his colleagues have studied what happens when cougars and grizzly bears are heavily hunted. In 1996, Washington state passed a law banning hunting cougars with dogs—the best method for finding the elusive animals. Some livestock owners feared that the population of mountain lions, as cougars are also called, would soar, leading to more stock losses. In response, state agencies extended the hunting season, increased the number of lions a hunter could take, and dropped the cost of a hunting tag. More than 66,000 tags were sold in 2007 (up from 1000 in 1996), although the cougar population was then estimated at fewer than 4000 animals. Cougar deaths skyrocketed—but so did complaints about problem animals.

State wildlife officials had made the common mistake of modeling the lions' response to hunting as if the carnivores were white-tailed deer, Wielgus says. Managers hadn't considered what happens to cougar society with such a high mortality rate. "A stable cougar society has senior, adult males," who patrol large territories and father and protect the kittens of several females, Wielgus explains. When a male dies, incoming younger males will fight over his territory, and kill kittens in order to bring the females into estrus again, as his team will report in *Biological Conservation* in November.

When the researchers looked at the cougar population of the Selkirk Mountains in eastern Washington, where lion complaints had increased, they discovered that most of the older male cats had been replaced by adolescent



View larger version:

[In this page](#) [In a new window](#)
[Download PowerPoint Slide for Teaching](#)

CREDIT: NATIONAL PARK SERVICE



View larger version:

[In this page](#) [In a new window](#)
[Download PowerPoint Slide for Teaching](#)



View larger version:

[In this page](#) [In a new window](#)
[Download PowerPoint Slide for Teaching](#)

CREDIT: © RYAN STAVELY

males. Because of the threat from these infanticidal young males, many of the female lions there had also moved to higher elevations with their cubs, Wielgus's team discovered. "The females moved to areas they would normally never use, where they eat prey they normally wouldn't eat, including the highly endangered mountain caribou," Wielgus says. The younger males also attacked livestock. "They're the ones that haven't learned to avoid people and so get into trouble."

Wielgus and his colleagues have worked with Washington's Department of Fish and Wildlife to overhaul cougar hunting rules to help restore the cat's society. Cougars in the state are no longer regarded as a single population. Instead, the state recommends that no more than 14% of the lions in any of 49 management units be killed annually. "It should lessen this massive social disruption they've experienced in the past," Wielgus says. He points out that California, which bans sport hunting of cougars, has one of the largest mountain lion populations (about 4000) and the lowest rate of livestock depredations. In contrast, other western states with lion hunts also have high depredation rates.

California's citizens seem as willing to accommodate cougars as Durango's inhabitants do bears—even though the big cats occasionally kill people. Since 1986 in California, cougars have attacked a dozen people and killed three, probably because of the growing human population. Yet Governor Jerry Brown signed a bill earlier this month that prevents managers from killing lions unless they pose an urgent threat to public safety. Wildlife wardens are to help capture and relocate the animals instead. "I'm amazed that Californians still want to protect them," says Gehrt, the coyote watcher.

The coyotes are coming

No predator has faced more lethal force than the coyote, which has never been protected. Several states still pay bounties for killing coyotes, and the U.S. Department of Agriculture (USDA) killed nearly 80,000 in 2012. Yet they have thrived anyway, Gehrt says.

In part, that's thanks to humans: We removed coyotes' top competitor and killer, the gray wolf, in the early 20th century. With wolves out of the way, coyotes began spreading across the country, and they're still on the move (see [map](#)). They arrived on the outskirts of Chicago in the 1990s, most likely by following railroad tracks, where fences and walls offer cover and make hunting easy. By 2000, they were in the city proper, and over the next decade their numbers rocketed by 3000%, to about 2000, for reasons that Gehrt is still trying to understand. "They've flexed their adaptive muscle and crept into openings in the urban landscape," he says. "Any small natural area in the city now has coyotes."

Over the past 13 years, he has published a string of studies analyzing coyote numbers, prey, and social structure using radio collars and camera traps. He's found that Chicago's coyotes eat the same prey that rural ones do: voles, shrews, rabbits, and fawns. To avoid people, city coyotes have switched to a nocturnal lifestyle, hunting at dawn and dusk. But they are clearly at home in the city. They cross lanes of traffic with aplomb, trot down the center of roads, duck into subways, and seek shelter in culverts and underpasses. And it's not just Chicago. Coyotes are moving east into every major U.S. city, including Milwaukee, Atlanta, and Dallas. They'll eventually meet up with those already in New York City, which migrated in via Canada.

Coyotes have some ecological benefits: They devour the eggs of Canada geese, and in Chicago have pushed the geese's annual population growth down from 10% or 20% per year around 1990 to 1% to 2% now. They may also be welcomed by suburban gardeners, because they eat fawns. The coyotes found in the Northeast, which have some wolf ancestry, can even take down adult deer.

People will need to adjust to their new neighbors, Gehrt says. Coyotes may bite—especially if they are accustomed to people feeding them—and they hunt pet cats and dogs. At first, many Chicagoans demanded the animals' removal, Gehrt says, in "a typical response to a new carnivore." However, as 2 centuries of hunting shows, a coyote killed will simply be replaced by another—so it's important that people know how to deal with them, says Valerie Matheson, the urban wildlife conservation coordinator for Boulder, Colorado. "People need to know that coyotes do pose a threat and they need to learn what to do when they see one," she says. Or what not to do: Coyotes chased and bit five people over 2 years on Boulder's bike path, probably because someone had first fed them.

Once coyotes are accepted, they may boost tolerance to other predators. "They crack open the door for other large carnivores to live next door to us," Gehrt says.

However, one large carnivore is not likely to set up shop near U.S. cities anytime soon: the wolf. Once found across most of the country, wolves became the most hated of predators once European settlers arrived. When sentiment changed in the 1970s, gray wolves were one of the first species to be protected by the federal Endangered Species Act, and the federal government actively helped restore them to the wilds of Montana, Wyoming, and Idaho. Other wolves independently loped in from Canada. Now, the federal government is seeking to remove their protected status, and they are hunted fiercely in several states.

Although many welcome the return of the wolf, others, particularly livestock owners, think that wolves and ranches cannot coexist—and that the only good wolf is a dead wolf. Wolves rarely kill people, but they do at times attack unprotected livestock. In 2010, USDA fingered them for the deaths of about 8100 cattle. But conservationists like to put that number in context: The same figures show that domestic dogs killed 21,800 cattle, and coyotes 116,700. "About 80% of wolf packs don't do this," says Wielgus, who's just launched a new study in conjunction with federal and Washington state agencies and livestock operators to find ways to alter the behavior of the other 20%.

Even so, **wolves** aren't expected near a city anytime soon, says Douglas Smith, the head of the National Park Service's wolf project in Yellowstone National Park. Given the space they need and the feelings against them, **"they'll always be restricted to places with a few people and no agriculture," he predicts.** But if the wolf remains a creature of wilderness, North America's other predators have, like so many of its human inhabitants, opted for the suburbs.

[↗](#)* Conservation Behavior Workshop, Merging Science and Application, sponsored by the Animal Behavior Society in Boulder, Colorado, 28 July 2013.

The editors suggest the following Related Resources on *Science* sites

In *Science* Magazine

LETTERS

Atlantic Rainforest's Jaguars in Decline

Mauro Galetti, Eduardo Eizirik, Beatriz Beisiegel, Kátia Ferraz, Sandra Cavalcanti, Ana Carolina Srbek-Araujo, Peter Crawshaw, Agustin Paviolo, Pedro Manoel Galetti Jr., Maria Luisa Jorge, Jader Marinho-Filho, Ugo Vercillo, and Ronaldo Morato

Science 22 November 2013: 930.

[Full Text](#) [Full Text \(PDF\)](#)

NEWS FOCUS

Man in the Middle

Virginia Morell

Science 20 September 2013: 1334-1335.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

PODCASTS

Science Podcast: 20 September Show

Science 20 September 2013: 1409.

[Summary](#) [Full Text](#) [Transcript](#)

[Leave a comment \(0\)](#)